MEMORANDUM FOR THE SECRETARY OF THE NAVY 28 NOV 90[1]

SUBJECT: A-12 ADMINISTRATIVE INQUIRY

1. Purpose. This reports the findings, conclusions and recommendations of the administrative inquiry directed by SECNAV memorandum of 9 July 1990.

2. Background. In December 1989, the Secretary of Defense (SECDEF) directed a review of four major aircraft programs, including the A-12 Full Scale Development (FSD) Program. During the course of that review, the Navy and the contractor team (McDonnell Douglas (McAir) and General Dynamics (GDFW) projected first flight of the A-12 by early 1991, and completion of the FSD program within the current fixed-price incentive contract ceiling. On 26 April 1990, following completion of that review, SECDEF announced his decision to continue the A-12 Program, albeit at a reduced procurement quantity. He indicated that the A-12 would likely fly in early 1991, and did not identify any impediments to completion of the FSD effort within the scope of the current contract.

On 1 June 1990, the contractor team advised the Navy of a significant additional slip in the schedule for the first flight, that the FSD effort would overrun the contract ceiling by an amount which the contractor team could not absorb, and that certain performance specifications of the contract could not be met. Following the failure of the contractor team to meet the 17 June 1990 first flight date specified in the contract, the Navy acted unilaterally to establish a new delivery schedule under the contract. The schedule now requires first flight by December 1991.[1]

In late June 1990, SECNAV determined to order an administrative inquiry into the variance between the status of the A-12 program as is was understood during the MAR and that reported subsequently by the contractor team, but deferred by inquiry pending completion of the final phase of the Critical Design Review (CDR) then in progress, after consulting with the Under Secretary of Defense (Acquisition) (USD(A)). On 9 Jul 1990, following completion of the CDR, SECNAV ordered this administrative inquiry to determine facts and circumstances surrounding the variance between the current status of the A-12 Program and representations made to the Office of the Secretary of Defense (OSD) on behalf of the Department regarding the program during the course of the Major Aircraft Review (MAR). He directed that the inquiry focus upon "the cause of the variance, accountability, and any systemic or other changes or improvements needed to ensure that significant information is developed and made available to appropriate officials in a timely, accurate manner."

Subsequently, at the request of the USD(A), members of the USD(A) staff joined the Navy inquiry support team, and the USD(A) requested that the inquiry also consider OSD staff processes and the MAR process itself to "identify the process root causes that permitted the problem to develop to the extent it did before management of either the contractor or the DOD were aware of the risk let alone the problems."

Accordingly, I established an inquiry support team comprised of representatives from the Office of the Judge Advocate General, Naval Audit Service, Naval Inspector General, the USD(A) staff, the Defense Product Engineering Services Offices, and Defense Contract Management Command.[2] Clerical support personnel with requisite security clearances were provided by Commander, Naval Legal Service Command, and Commander, Naval Military Personnel Command. Additional clerical support and guidance in security matters was provided by the Assistant for Special Programs to the Under Secretary of the Navy.

In carrying out the direction provided, I have attempted to answer three questions:

-- *Did the Navy, OSD or the contractor know of or have reason to anticipate substantial additional cost increase and schedule slip at the time of the Major Aircraft Review?*
-- *If not, why not?*
-- *If so, were senior DON and DOD leaders sufficiently apprised in the course of the Review? If not, why not?*

In 1984, the Deputy Secretary of Defense (DEPSECDEF) directed the Navy to develop and acquire the A-

[1] This manuscript was prepared as part of a case study developed by Dr. David Christensen (christensend@suu.edu). The memorandum was not scanned. Accordingly, there may be few typographical errors in the text and figures.

12 as a replacement for the aging A-6 Intruder, and directed that the A-12 achieve Initial Operational Capability (IOC) not later than 1994. In November 1984, two teams (McAir/GDFW and Northrop/Grumman/Vought) were awarded contracts for concept formulation. Both teams continued into demonstration validation under contracts awarded in June 1986. The two teams competed for the Full Scale Development (FSD) contract, which was awarded to the McAir/GDFW team on 13 January 1988. The fixed-price-incentive contract established a target price of $4.379 billion, a ceiling price of $4.777 billion and a 60/40 share line between target and ceiling, and contained an economic price adjustment clause. Target cost for the contract was $3.981 billion, with a resultant profit to the contractor team of $398 million, or 10 percent of the target cost. Under the FSD contract, the contractors agreed to deliver 8 flight test aircraft and 5 full-scale ground test articles, and first flight of the A-12 was scheduled for June 1990. The contract also contains fixed price options for three production lots, for 8, 16, and 30 aircraft respectively, with not-to-exceed ceiling prices and a requirement for the contractor to provide a not-to-exceed ceiling price for the fourth production lot at the completion of Critical Design Review. The first two production lots are pilot production, and the third and fourth are designated as low-rate initial production (LRIP). The USD(A) Acquisition Decision Memorandum of 11 January 1988 approving entry into Full Scale Engineering Development also approved pilot production and long lead funding for the first LRIP buy.

For the Government, the A-12 FSD Program is managed by a Program Manager (PM), who has full authority, responsibility and accountability for the program under DON and DOD policy, subject to any limitations imposed by approved program documentation or direction from his superiors. The current PM has served since 30 June 1986.

In performing his duties, the PM is assisted by a small immediate staff, by a larger program management team drawn from the functional disciplines represented with Naval Air Systems Command's (NAVAIR's) matrix organization, and represented by personnel assigned to the PM or to the cognizant Defense Plant Representative Offices resident in the contractor team facilities in St. Louis (McAir) and Fort Worth (GDFW). For convenience, these latter offices will be referred to as the NAVPRO and AFPRO, respectively, reflecting their status prior to the 1 July 1990 establishment of the Defense Contract Management Command.

Prior to 16 April 1990, the PM reported directly to the Commander, NAVAIR (COMNAVAIR), who served as Program Executive Officer (PEO) for all assigned major programs. As such, COMNAVAIR also had full authority, responsibility and accountability for the A-12 Program, and reported directly all matters affecting its cost, schedule and performance to the Navy Acquisition Executive (NAE). Since 16 April 1990, the PM has reported to a PEO for Tactical Air Programs established separately from COMNAVAIR (and through the PEO to the NAE) pursuant to DON initial implementation of a requirement of the Defense Management Report. COMNAVAIR remains responsible for the level and quality of matrix support provided to the PM.

The NAE, in turn, reports to the USD(A) in his capacity as the Defense Acquisition Executive. Under DOD policy, the USD(A) exercises program decision authority for the A-12 Program through the Defense Acquisition Board (DAB) at program milestones (0- concept formulation; 1 - demonstration/validation; II - full scale engineering development; IIIA - LRIP; IIIB - full rate production). He may also conduct program reviews directly through the DAB, or indirectly through a DAB Committee, in this case the Conventional Systems Committee, between milestone decisions as events warrant. The Defense Acquisition Executive Summary (DAES), a quarterly report prepared by the PM and forwarded through the PEO and NAE, along with informal contacts and/or briefings; is the principal source of information to the USD(A) and his staff regarding ongoing program developments between milestone or other formal reviews.

3. Summary of Analysis. In order to respond comprehensively to the tasks prescribed by the Secretary of the Navy and the USD(A), it was necessary first to identify and analyze the operation of the principal program management control mechanisms available to the Navy and DOD A-12 program management structure. Accordingly, we examined each of the key program management controls bearing on the identification of the cost and schedule difficulties identified in the A-12 program. We then analyzed the MAR process against the information environment created by operation of these controls.

    a. Cost/Schedule Performance Reporting. DOD policy requires contractors to operate internal management systems that meet specified Cost/Schedule Control Systems Criteria (C/SCSC). The principal purpose of these criteria is to provide an adequate basis for responsible decision-making by both contractor

management and DOD Components. Contractors' internal management control systems must provide data which indicate work progress; properly relate cost, schedule and technical accomplishment; are valid, timely and auditable; and supply DOD managers with information at a practical level of summarization.

Contractor management systems are inspected by DOD and determined to be C/SCSC compliant. Systems are also subject to a review as soon a practical after award of a major contract. The purpose of this review is to verify that the contractor's accepted system complies with the DOD criteria as applied to the particular contract at issue.

DOD and DON policy further require contractors for designated major systems acquisition programs periodically to submit Cost Performance Reports (CPRs). CPRs identify the cost and schedule status of contract performance at the total contract level, by individual Work Breakdown Structure (WBS) elements specified in the contract, and by functional categories that are selected to reflect the way the contractor is organized to perform the work. A narrative problem analysis is required explaining variance at whatever level is specified in the contract. CPRs are normally required on a monthly basis. Under DON policy, they are intended "for use in making and validating management decisions," to provide "early indicators of contract cost/schedule problems," and to facilitate assessment of "effects of management actions taken to resolve problems affecting cost/schedule performance."

Utilization of CPR Data by the Contractors

McAir and GDFW have submitted CPRs in the A-12 program quarterly since June 1988, and monthly since February 1989. Both McAir and GDFW have excellent cost and schedule reporting systems that have continuously provided the detailed information necessary to make reasonable assessments of contract status as contemplated in DOD policy. As Figure 1 indicates, these systems have identified significant and increasing negative cost and schedule variances throughout the period of contract performance.

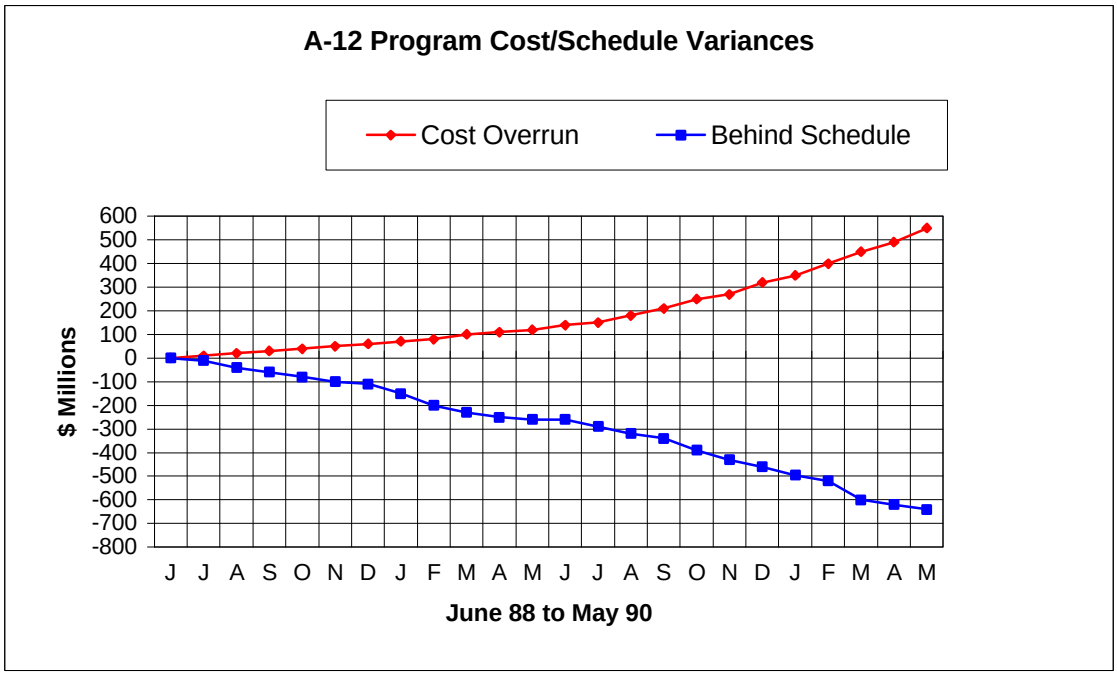

Figure 1

A number of recurring reports circulated within the McAir/GDFW program management

organizations contained thorough analyses of cost and schedule variances. However, the McAir/GDFW team failed to utilize the CPR information to identify to the Government the potential schedule and cost implications of the performance problems its encountered. Notwithstanding the consistently negative trend of cost and schedule performance data, the McAir/GDFW team continually made best case projections of cost at completion based upon overly optimistic recovery plans and schedule assumptions. The evidence indicated that the contractor team perceived significant pressure from upper management throughout the performance of the FSD effort to maximize cash flow. Such pressure would create an incentive to be optimistic, inasmuch as progress payments would be subject to reduction in the event of a contractor or Government estimate of an overrun. Figure 2 illustrates the estimates at completion submitted by the contractor team.

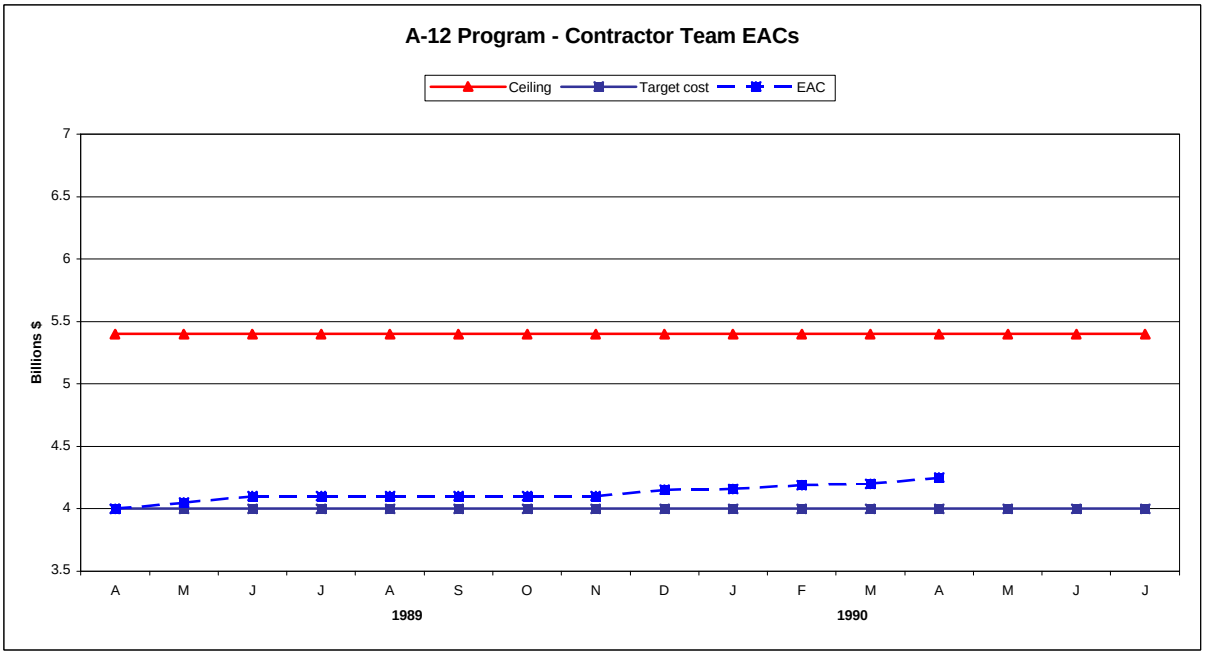

Figure 2

Utilization of CPR Data by the Government

CPR data should be utilized by the Government PM in at least three ways:

-- to analyze contractor design and manufacturing activities, especially the reasonableness of contractor cost and schedule recovery projections.

-- to assess the validity of requests by the contractor for progress payments and other payments predicated upon completion of work under the contract.

-- to estimate the cost at completion (EAC) of the contract on a quarterly basis in the DAES, and in briefings regarding program status.

Utilization of CPR data in analyzing contractor design and manufacturing activities and assessing the validity of the requests for payment under the contract are discussed in Sections 3b and 3c, respectively, below. This section focuses upon the role of CPR data in the development of the PM's EAC and his understanding of current contract status.

Trends in the cost and schedule performance data reported in CPRs can be extrapolated to produce

a large range of estimates at completion of the contract. Three bases for extrapolation which are commonly used in establishing the range of estimates are:

-- the cumulative cost performance index (cum CPI), which represents the budgeted cost of work performed divided by its actual cost.

-- a more recent period CPI (e.g., 12-month, 6-month, 3-month).

-- equal weighing of the CPI and the cumulative Schedule Performance Index (SPI), which represents the budgeted cost of work performed to date divided by the budgeted cost of work scheduled to be performed.

DOD experience in more than 400 programs since 1977 indicates without exception that the cum CPI does not significantly improve during the period between 15% and 85% of contract performance; in fact, it tends to decline. Accordingly, extrapolation from the cum CPI tends to produce a lower EAC than extrapolations based upon more recent periods of performance or equal weighing of CPI and SPI. Equal weighing of CPI and SPI tends to produce the higher estimates, but experience also demonstrates it to be the best predictor of actual performance at completion. However, once a range of estimates is established, the analyst must apply knowledge of the contract, experience and professional judgment to narrow the range of estimates toward the most likely outcome.

Within the Naval Air Systems Command (NAVAIR), a Cost Analyst analyzed each A-12 CPR. She provided a written Cost Performance Summary (CPS) to the Program Office and briefed the PM or his Business and Finance Manager (BFM) regarding her findings. The CPS contained a single point EAC based upon the cum CPI, rather than the Cost Analyst's best professional judgment. This comported with the standard practice of her office, but facilitated reliance by the PM upon the single written cum CPI estimate as her best estimate. Her supervisor stated that the practice of providing the cum CPI as the written estimate, rather than the Cost Analyst's best estimate, was intended to afford the PM maximum flexibility in representing his program.

Nevertheless, the evidence establishes that the Cost Analyst also briefed the Program Office regarding other, higher estimates. The Cost Analyst's working papers in March and July 1989 included her assessment that a continuation of recent performance trends would cause completion costs to meet or exceed the contract ceiling. Moreover, in a footnote to her formal CPS for July 1989, she noted that a "weighted CPI" would result in an estimate some $200 million above ceiling. Her subsequent briefing notes make repeated references to the difference between the cum CPI and less favorable six-month and three-month indices. The documentary evidence and the testimony of the Cost Analyst and the BFM establish that by July 1989, and certainly after the cost performance index began to deteriorate again in September 1989, the BFM and the PM, either directly or through the BFM, were aware that the recent period contractor performance was substantially below the cum CPI, and that the cum CPI was the lowest estimate she could provide.

The PM apparently chose to rely upon the cum CPI as a ceiling, rather than a floor for his own estimate, notwithstanding the other, higher estimates briefed to the Program Office. In the November 1989 and February 1990 DAES reports, the PM reduced the Cost Analyst's written estimate in making his own EAC, in reliance upon other information which he believed would result in an improvement in the contractor team's cumulative cost performance. Figure 3 indicates the relationship between the range of estimates available during the performance period, the cum CPI, and the PM's EACs.

Moreover, it appears that the special access nature of the A-12 Program was allowed to interfere with normal mechanisms for higher-level oversight of contractor cost performance. Specifically, the Contract Performance Management Reporting and Assessment normally forwarded through the matrix to COMNAVAIR was not prepared because of the limited number of personnel cleared for the program and the lack of cleared spaces. Additionally, the Program Performance Oversight Data Report normally provided to the Navy Secretariat was not prepared because the computer program resided on a mainframe computer in an uncleared, non-government facility. In the absence of formal reporting, information was

transmitted verbally only, in couched terms, and with no feedback to confirm that the data had been received or its implications understood. At the OSD level, the OUSD(A) Cost Management staff was not cleared for the A-12 Program until 26 March 1990. Prior to that time, the DAES process did not recognize the significance of unfavorable cost and schedule variances until more than a year after such variances would normally have become DAES meeting issues.

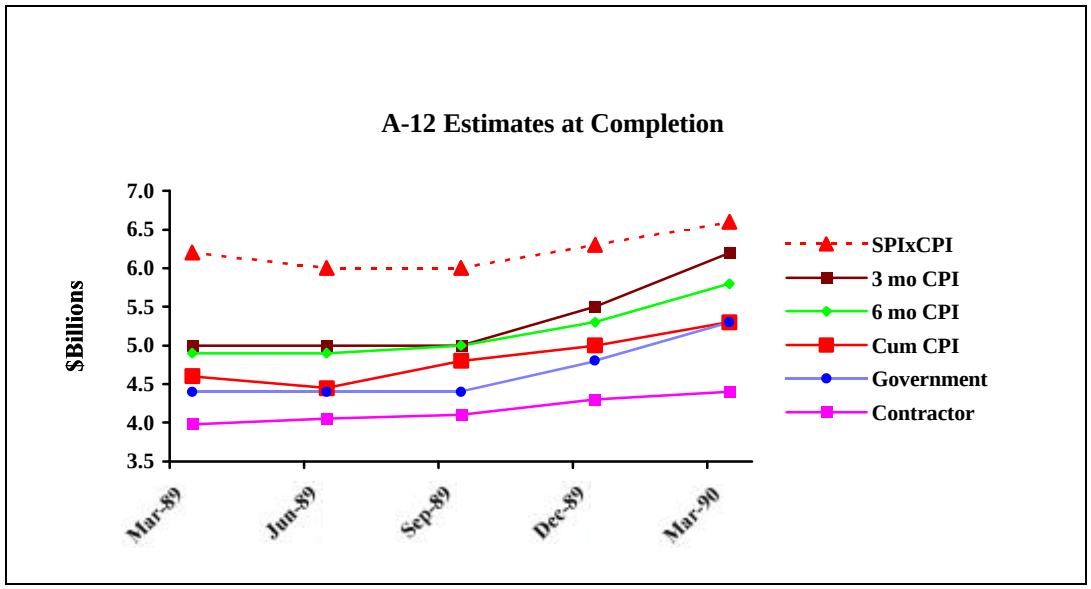

Figure 3

b. Engineering and Production Oversight. Review of CPRs, and other data prepared and submitted by the contractor is one means by which the PM fulfills his broader responsibility to measure compliance with program cost, schedule and performance requirements through engineering and production oversight.

PMs are responsible for planning and executing production management and conducting engineering surveillance over contractor operations. They accomplish this by their own assets, assets drawn from the SYSCOM matrix, and the services of the cognizant contract administration office to identify variances from cost and schedule in time to direct remedial action.

In this regard, Federal Acquisition Regulation 42.302(a) establishes standards for production surveillance by Plant Representatives Offices stating that they shall, among other things:

> Perform production support, surveillance, and status reporting, including timely reporting of potential and actual slippages in contract delivery schedules.
>
> Perform engineering surveillance to assess compliance with contractual terms for schedule, cost and technical performance in areas of design, development, and production.
>
> Evaluate for adequacy and perform surveillance of contractor engineering efforts and management systems that relate to design, development, production, engineering changes, subcontractors, tests, management of engineering resources, reliability and maintainability, data control systems, configuration management, and independent research and development.

The primary problem encountered during FSD was weight growth due to the thickness of the

composite material necessary for the structural strength required to support the stress and loads experienced by carrier-based aircraft. Both contractors have limited experience in building large composite structures and, in large measure, have had to develop the technology as the program progressed.

The initial schedule proposed by the contractors and established in the contract for the production of the A-12 was highly demanding from the start. In an effort to meet the schedule, both contractors had to compress activities for the design phase, subassembly at each manufacturing site, and for final assembly/ramp site at Tulsa, Oklahoma. The original schedule envisioned four and a half months for assembly of the aircraft sections at St. Louis and Fort Worth and another four and half months for final assembly and ramp at Tulsa. This nine to ten month period for production of the first aircraft was ambitious. I am advised that most aircraft programs in productions take anywhere from 12 to 14 months from start of assembly to flight operations.

At the time the PM's production oversight team assembled in the summer of 1989, first flight was projected for June 1990. In order to meet this date, the contractors should have had a firm design in hand and already released it to their manufacturing elements. Assembly tooling should have been designed, built, and on the assembly floor by September 1989. Ample parts flow to support initial assembly should also have occurred in this timeframe. Accomplishment of these tasks would have allowed assembly of the airframe sections by the end of January 1990 for shipment to Tulsa for final assembly.

However, as the first CPRs indicate, there was early evidence of trouble affecting the production schedule. The amount of engineering effort required for the design of the airframe and the fact that added design engineering resources (outside engineering design subcontractors) put in place in the summer of 1989 could not maintain the recovery schedule was the first indicator that first flight of June 1990 would slip. By then, the first flight date of June 1990 was likely unattainable due to lack of ample tooling and parts flow.

To meet the fall-back September 1990 first flight date, formally projected by the PM in the November 1989 DAES, design release and initial tooling/fabrication should have occurred no later than late fall 1989. Tooling should have been in place and initial assembly initiated no later than December 1989 for assembly and shipment to Tulsa by the end of April 1990. Similarly, for a December 1990 first flight date, assembly should have been initiated no later than April 1990, and shipment of the completed aircraft sections to Tulsa would have had to take place no later than August 1990.

When these key dates were missed, it should have been evident to the contractors that first flight was sure to slip further in the calendar year. The contractors underestimated the level of effort needed to stabilize aircraft design, as well as the impact this would have on tooling and fabrication. In addition, they overestimated their internal capability and capacity for tool design/fabrication of metal/composite components. At best, these failures resulted from a plain lack of objectivity at the contractor team level, and wholly inadequate oversight by General Dynamics and McDonnell Douglas corporate management.

With the ongoing late release of engineering design drawings, primarily reflecting efforts to overcome weight growth, the next stage of the manufacturing process, tool design and fabrication, was severely impeded. The stop work orders resulting from the limited engineering drawing releases continually delayed production. In addition to the tooling problems, further delays initial fabrication of the composite, sheet metal, and machined parts pushed back the initial load dates for assembly jigs and fixtures at both contractor facilities. The fact that parts flow was not occurring at a rate significant to sustain loading and assembly operations was another indicator that the program was in trouble and first flight would slip.

At McAir, contract administration services for the A-12 were performed by the NAVPRO. At the NAAVPRO, the Program Manager's Representative (PMR) was responsible for coordinating all contract administration functions pertinent to the A-12 program, including the monitoring and coordination of such functions as engineering change proposals, configuration management, and producibility. The PMR is also required to evaluate the contractor cost, schedule and technical performance, and analyze variances between planned and actual accomplishment. The PMR relies on a functional matrix within the NAVPRO,

as well as assistance from NAVAIR, in the accomplishment of production monitoring and oversight.

On July 25 1989, the PM and the NAVPRO Commander executed a Memorandum of Agreement (MOA) addressing NAVPRO support of the technical and management requirements of the A-12 Program. The MOA states that the following requirements, among others, will be performed by the NAVPRO:

> *Monitor and evaluate contractor's plan for fabrication and assembly of the A-12 aircraft, placing special emphasis on the areas of plant facilities, test equipment or tooling inventory as it may relate to the contractor's ability to avoid conflict with other ongoing production systems (such as the F/A-18, F-15, or AV-8 programs.)*
>
> *Evaluate the feasibility of the contractor's production plan as it relates to sharing other program assets to the advantage / disadvantage of the government and the A-12 program.*
>
> *Keep Navy personnel with valid need to know, continually informed of fabrication and assembly problems that have been identified or resolved.*
> *Review monthly, the contractor's structural components schedule. Provide the PMA with an analysis of problem areas and proposed workarounds as part of the NAVPRO monthly program management reports.*

At GDFW, the AFPRO was responsible for contract administration. The focal point for the A-12 program was the A-12 Program Director. His responsibility, as outlined in relevant Air Force regulations, is to improve communications and facilitate teamwork between the AFPRO and the Program Office. His responsibility, as outlined in relevant Air Force regulations, is to improve communications and facilitate teamwork between the AFPRO and the Program Office. Among his duties is to develop management systems and indicators providing visibility into the contractor's accomplishment of all contractual requirements and to collect, integrate and analyze program data to provide the buying agency with a total program assessment.

The AFPRO Commanding Officer declined to sign an MOA with the PM regarding Aa-12 support, because he felt he could not comply with it due to personnel shortages. Additionally, he felt it would be premature to sign the MOA in light of the then pending creation Defense Contract Management Command, the full implications of which were not yet known. The specific impact of the program of not having an MOA is difficult to quantify. However, the level and quality of support did not equal that provided by the NAVPRO.

Notwithstanding the PMs initiation of the MOA with the NAVPRO and the AFPRO, production oversight responsibilities and the process through which they would be carried out between the Program Office/NAVAIR matrix and the NAVPRO/AFPRO, did not appear to have been clearly established prior to the outset of the manufacturing process. This is reflected in the failure to establish an acceptable support relationship with the AFPRO, and the consequent need to assign Program Manager's Technical Representatives (Tech Reps) to GDFW one at a time until now there are three. It is also reflected in the fact that as late as the winter of 1989, the Deputy PM-Production was having difficulty getting the NAVPRO and AFPRO to focus their activity reports on program issues rather than measurements having no management utility, such as raw number of data deliverables received during the reporting period. Finally, it is reflected in the fact that the Program Office failed to follow-up on its direction in October and November 1989 to the PRO organizations to track "on the floor" the contractor's progress in reducing backlog, work in process, and slipped or missed promise dates and the impact of these events on the asserted schedules. The Deputy PM-Production testified that he was only able to assess these issues in March and April 1990, after spending several months developing his own “PERT” chart here in Washington. He should not have had to do so; the NAVPRO and AFPRO should have provided such analysis.[3]

We found no focused utilization of the CPR data by Navy program management beyond the contract summary level analysis and limited analysis of major variances at the detailed functional level provided by the Cost Analyst to the PM and his BFM. Specifically, although the CPRs highlighted weight

growth, late drawing releases, and tooling problems continually from as early as June 1988, there is no evidence that either the functional level of detailed data or the detailed Work Breakdown Structure data was provided or utilized by the Deputy Program Manager-Production, NAVAIR design engineering or production oversight personnel, or engineering or manufacturing oversight personnel at the NAVPRO/AFPRO to facilitate assessment of the contractor team's problems.

Analysis of this information at the detailed level, and integration of it with other data which was developed from time to time, would have strengthened the position of the NAVPRO (and, had it been fully utilized, the AFPRO) in challenging the contractor's optimistic assessments in the analysis provided to the Program Office.

There were shortcomings at the NAVPRO in integrating engineering, industrial, and C/SCSC oversight functions into a "program perspective." This was particularly evident in their efforts in 1989 to track the number of design drawings released following redesign efforts to reduce the weight of the aircraft. Although they tracked the number and percentage of drawing releases, NAVPRO personnel failed to make any industrial assessment of the increased requirements those more complex drawings would place on tooling. This is a conspicuous example of how review of the detailed CPR data at the NAVPRO level might have focused the NAVPRO staff on the impact the engineering design problems quickly began to have in other functional areas. While the support and information provided by the NAVPRO was sufficient to alert the Program Office and NAVAIR to the problems with the A-12, it does not appear to have furthered the understanding of their impact on cost and schedule, nor did it transcend the information the Program Office and the NAVAIR matrix were receiving throughout the period directly from the contractor.

The performance of the AFPRO on the A-12 program was ineffective. Despite the size and criticality of the program, the AFPRO dedicated inadequate resources to the program to fulfill its responsibilities under the FAR. Although the AFPRO Commander requested additional resources, he did not choose to reallocate his existing resources when additional personnel were not provided. As a result, the Program Office and NAVAIR found it necessary to place "their own" technical representatives in the plant.

There was a substantial flow of raw data from the contractors to the Program Office and NAVAIR, and the PM made frequent visits to the contractor facilities. With respect to information flow, then, the adverse impact of the shortcomings at the NAVPRO and AFPRO may have been mitigated to some extent. However, it is noteworthy that as the PMRs alerted the Deputy PM-Production to their concerns during the fall and winter of 1989-1990, he told them he needed hard data and analysis, rather than mere "gut feel." They did not effectively generate such data and analysis, although the contractors appear to have responded fully and in a timely manner to their data requests. Consequently, their contribution to production oversight was insufficient to challenge effectively the contractors' optimistic assertions.

In summary, the PM underestimated the cost implications of adverse engineering and manufacturing process data in his program estimates. Areas which appear to have been under-appreciated include:

-- the impact of the late release of detailed design drawings on manufacturing, particularly on the contractor's ability to facilitate initial tool design and fabrication of tooling to support assembly operations and piece part fabrication.

-- instability of the design releases to manufacturing.

-- the high degree of design change notice activity and the resulting stop work orders to manufacturing, which delayed tool design and fabrication and initial piece part fabrication.

-- the impact of the late start on tool design and fabrication, for both assembly and piece part fabrication tooling, would have on the proposed schedules.

-- the inability of the contractors' tool shop/outside vendors to support initial fabrication of piece parts necessary to sustain asserted assembly schedules.

Under DOD and DON policy and approved program documentation, the NAVPRO and AFPRO should have been the PM's primary "eyes and ears" on-site in identifying and analyzing the implications of these problems, and the feasibility of the contractor team's response to them. In order to do so, they should have extensive use of the detailed CPR data and a PERT or similar system to assess contractor progress and the likely systemic impact of various sources of delay. As indicated, the NAVPRO and AFPRO did not effectively fulfill this responsibility. The precise impact of deficiencies in NAVPRO/AFPRO support upon the PM's ongoing assessment of program status cannot be stated with precision; however, they plainly did not fulfill the primary and close oversight role contemplated by existing policy, and it is not clear what additional insight they contributed by virtue of their presence in the contractor facilities which the PM did not or could not readily obtain directly from the contractor team. On balance, I believe that the fact that the NAVPRO and AFPRO did not play a primary, aggressive role in engineering and production oversight pursuant to well defined and accepted responsibilities contributed to the PM's underestimation of the cost and schedule implications of the contractor team's performance difficulties.

c. Program Contract and Payment Controls. As previously noted, the A-12 FSD contract is a fixed price incentive contract, and provides for payments upon completion of each of a series of event-based items. These features of the contract establish a relationship between progress and other payments during the course of contract performance and actual progress toward its completion. Accordingly, we examined the process of contract administration to determine the extent to which that process might have illuminated the contractor team's performance problems, and the extent to which it actually did.

With respect to the A-12 contract, Government progress payment and billing price administration were inadequate to provide visibility into the contractors' performance problems. Contractor requests for progress payments were not properly reviewed to assess their validity, and required analyses supporting critical estimates used to determine contract physical progress were not performed. Adverse information on contractor financial condition and contract performance from the limited reviews that were performed was not effectively utilized in the review of progress payment requests, adjustment of billing prices, and administration of the progress payment liquidation rate. Special procedures established to expedite progress payments to the contractor team diffused Government personnel responsibilities for review and approval of contractor requests. The Government may be due substantial credits to liquidate excess progress payments associated with contractually-accepted work.

Review of Progress Payments

The contractor team is permitted to request progress payments no more frequently than monthly based on eligible cost associated with contract work-in-process. Due to the unique teaming arrangement on this particular contract, the progress payment request process provides that GDFW will submit a combined request for progress payments including the McAir request, and subsequently disburse financing received in accordance with the progress payments request. The administrative contracting officer (ACO) at the AFPRO at GDFW is responsible for approval of the progress payment request. This approval by the ACO should be based on an analysis of contractor cost and schedule progress as well as contractor financial condition. The analysis of cost and schedule progress should be based on the contract and the Government estimate of the cost to complete the contract. Subsequent to ACO approval, the progress payment request is forwarded to the A-12 Program Office for review, approval and subsequent processing. The Program Office, in conjunction with the procuring contracting officer (PCO), reviews the progress payment request, approves it, and determines how the expenditure is to be spread among the outstanding contractual obligations. This information is then transmitted to the disbursing officer for payment to the contractor.

The ACO can request that the Defense Contract Audit Agency (DCAA) audit contractor progress payments in order to verify the amount claimed in the progress payment request to the contractor's books and records as a basis for approving contract financing through progress payments in accordance with the provisions of the contract. A progress payment audit includes examining on a test basis evidence

supporting the amounts and disclosures in the data and records used for progress payment verification in order to obtain reasonable assurance that such data and records are free from material misstatement. In addition, an audit also includes assessing the accounting principles and significant estimates made by the contractor that support the progress payment audits periodically on progress payment requests by these contractors. The ACO can also request or perform analyses of contractor performance based on CPRs submitted by the contractors on a monthly basis as a means for comparison with progress payment requests.

Government oversight of contractor requests for progress payments by the ACOs at GDFW and McAir did not comply with policy guidance, including the Federal Acquisition Regulation (FAR). Specifically, they failed to reconcile physical contract performance with costs incurred and charged to the Government despite the substantial cost and schedule variances being reported in the CPRs. Nor did they take action to compute a loss ratio factor and utilize it to adjust progress payments once available evidence indicated the likelihood that the FSD contract would exceed ceiling.

In addition, the Defense Contract Audit Agency (DCAA) Resident Audit Offices at both contractor locations did not perform essential audit requirements as specified in the DCAA Contract Audit Manual in auditing the contractor Cost/Schedule Control System and specific requests for progress payments on the FSD contract.[4] The combined effect of these control deficiencies was failure to detect significant contract "over-progressing" and initiate prompt corrective action.

Acceptance of Incomplete Line-Items

The Navy accepted three contract line items as complete on 15 December 1989, although contractor team performance was incomplete. Specifically, Critical Design Review (CDR) Phase II was accepted as complete although numerous significant issues were unresolved.[5] Associated testing requirements for CDR Phase II were also accepted as complete although an aircraft mockup meeting contract specifications was not available at the time of CDR Phase II to accomplish critical testing. In addition, the first of two contractual Program Management Reviews (PMR) was accepted as complete although required drawing release for nine critical systems, subsystems, and structures was significantly below contract requirements. Like the failure to administer progress payments, the failure to administer the event-based line items in the contract in a disciplined manner -- especially those pertaining to the CDR Phase II and PMR -- fostered the illusion that internal program milestones had been successfully passed, when critical elements of the substance of them had, in fact, only been pushed downstream. This stands in sharp contrast to the PM's "Good News" slide at the November 1989 CSC and subsequent briefings that CDR was "nearing completion."[6]

As a result, the contractor team received progress payments for work not substantially completed at the time of payment. These payments for incomplete work, like the over-progressing discussed above, obviated the visibility into the contractors' performance problems which more disciplined administration of the contract might have provided.

Exercise of the Lot I Production Option

The Navy unilaterally exercised the Lot I production option for 6 aircraft on 31 May 1990 at the not-to-exceed ceiling price of $1.98B. The PM, PEO and AIR-02 sought and obtained the NAE's approval to exercise the option on 21 May 1990. At the time they did so, the PM and PEO were aware of recent information indicating significant cost, schedule and technical risk not previously displayed to senior management.

Shortly after completion of the MAR, as part of the indoctrination of the new PEO, the PM arranged a technical overview for him, which the A-12 Class Deck (Chief Engineer) presented in early April 1990. It had become clear at this point that Phase 3 of the CDR was slipping even further because of large weight increases and significant technical issues such as lagging software development structural test schedule weaknesses, and antenna problems. The incoming PEO was greatly concerned about these issues

and insisted COMNAVAIR be briefed as soon as possible. This briefing took place on 16 April.

The Class Desk identified Weight, Performance and Structural Testing and integrity as his primary concerns. He noted that NAVAIR's estimate of aircraft weight at IOC would be 7,390 pounds over the specification with resultant adverse impact on operational performance and the current A-12 structural design. He identified resolution with the contractors of minimum acceptable structural test requirements for first flight as a significant issue. He also pointed to other technical issues still outstanding, which were likely to lead to schedule delays affecting first flight and IOC, and likely to jeopardize successful conclusion of CDR. His "summary" slide for the brief stated:

We have significant technical problems that must be resolved before CDR can continue.

Development is behind schedule and present first flight and OPEVAL dates are too optimistic.

Some technical problems will require significant lead times to fix. This suggests we should reexamine aircraft early procurement rates.

COMNAVAIR directed the PM to develop a "second opinion" overnight and brief him the next day. He also telephoned each of the contractor CEOs to express his concerns and to inquire into their corporate commitment to the program. He received assurances from both that they were committed to the A-12 Program and that they would be personally involved in addressing Navy concerns.

In his brief on 17 April, the PM emphasized the positive aspects of the program, asserting that the technical issues were significant but manageable. He addressed the concerns raised by the Class Deck in the context of proposed solutions to these technical problems. He displayed a chart indicating the risk of completing key milestones as scheduled that showed only the engine problem affecting key milestones as scheduled that showed only the engine problem affecting projected first flight in December 1990. The PM also pointed out the pros and cons of a Navy-directed slip, contending it would open the FSD contract to renegotiation, delay IOC, jeopardize FY90-91 funding, and result in loss of production options. His "summary" slide stated:

Tech/Performance/Schedule Issues Are of Major Importance - Do Not Warrant Immediate Program Slip.

Directed Program Slip Will Be Extremely Expensive - Slip, If Necessary, Should Result From Contractor Action.

Directed Program Slip Relieves Contractor of Technical and Contractual Obligations.

Acquisition Strategy Review Can Provide Orderly Approach to These Issues.

The PM recommended that COMNAVAIR maintain the current program structure and conduct a total acquisition strategy review with the contractors in light of the current situation relative to CDR, schedule, contract specification, contractor costs and cash flow. Lot I option definitization, and prime competition. The PM alluded to the MAR in his brief, noting that its focus had been on the "Changing Threat, Validation of Requirement, and Cost/Affordability" issues. He reminded COMNAVAIR that the USD(A), SECNAV, and the MAR Working Group already had been briefed n 9 March 1990 by the contractors at GDFW on all technical issues (less those relating to the engine), been commended for their candid approach, and that the technical situation was aggravated in only three areas (engine, weight, and antenna). He observed that the MAR seemed more oriented towards re-validating the program requirements rather than probing technical details.

COMNAVAIR concurred with the recommendation of the PM, and an Acquisition Strategy Board was scheduled with the contractors on 25 April 1990.

Meanwhile, on 29 March 1990, during the MAR, the ASD(PA&E) had suggested that the A-12

production options be renegotiated to be event-based rather than schedule-based. Subsequently, the NAE directed the PM and PEO to consider this issue. They, together with AIR-O2, initially briefed the NAE on 24 April 1990.

The slides utilized at this briefing did not mention the concerns briefed by the Class Desk the week before, and emphasized the need to adhere to the current contract. Specifically, they noted the favorable performance specifications, their protection through the production options, and the strong warranty provisions. They also emphasized the risk of increased cost through "reopening" the contract, noting that the contractor "has acknowledged going to ceiling" and "some feel he may go above" (without mentioning the NAVAIR Cost Analyst's estimate or the USD(A) Deputy Director of Cost Management's estimate of $1B above ceiling, which had been briefed to the PM on 29 March 1990), and that the contractor was "in a severe negative cash flow position." The slides asserted that "technical performance to date meets program objectives" and that the program was "on track to make major milestones (IIIA, IIIB, IOC," while "first flight delay may drive contractor costs higher." The briefing asserted that it would be "difficult to limit the scope of negotiations" over the options, and that the contractor would likely seek to "recover financially, eliminate specification difficulties, and neutralize all Government leverage." The Lot I option was portrayed as "just about fait accompli," while it was asserted that the Lot II and III options should be exercised within the current contract and the Lot IV option could be negotiable. In summary, "opening the current contract/option package" would "provide no additional Government leverage" and "jeopardize all favorable aspects of the contract."

No decision was made at this briefing, pending development of an overall Navy strategy regarding event-based contracting. The following day, 25 April 1990, the PM and his principal assistants met with the contractors at St. Louis. As he recounted this meeting--

> *I opened the discussion by taking the contractor to task on their credibility, and the way it was impacting overall A-12 program credibility. I highlighted eight specific areas, including aircraft weight, first flight schedule, and FSD costs vs ceiling. This discussion generated an action item for the contractors to "submit alternatives for rephasing the program to realistically accomplish our mission. Approaches will show assumptions, pros/cons and schedule. Due 4 May 1990 to PMA."*

On 4 May 1990, the contractors briefed the PM in response to his 25 April tasking. In his written statement, the PM summarized their presentation and his impressions:

> *For the first time, they acknowledged the very strong likelihood that they would exceed their ceiling costs on the FSD contract if some major changes in approach were to be undertaken. They also presented a first flight date of March 1991, which was three months later than their previous estimate, but was consistent with the date the program office has independently determined and had been briefing. This date was also consistent with what SECDEF briefed to the MAR on 26 April 1990. The business concerns, however, were the most alarming aspects of our discussions. The contractors advised us that "corporate" had initiated an independent "red team" assessment of the program, focusing on costs and schedule to first flight. Corporate was particularly alarmed at the overall outcome of the MAR (beyond A-12 issues), the declining defense budget in the out-years, and the impacts of these items on their future business base. My concern was that the A-12 would lose the corporate support necessary in a development effort for adequate resources to successfully execute the program. The contractor's re-phased schedule included the delay of production by one year (roughly matching the first flight delay), and the transfer of APN funds freed up by that delay to augment the R&D funds for the FSD program. I and my staff unanimously rejected the fund transfer approach as a "bailout," and reminded the that the FSD contract was valid, we intended to enforce it, and that they should continue to execute that contract. The contractors also indicated that corporate involvement was such that they fully expected a corporate initiative (letter or visit from the Chairmen) on the A-12 program to the USD(A) or the DEPSECDEF very soon. I advised them that it would not be prudent to bypass the Navy (SECNAV or ASN(RD&A) in this process. Having dealt with this contractor program management team for almost four years at the time, I sensed that this was definitely not*

"posturing" on their behalf, but the onset of a potential crisis.

After this meeting, the PM alerted the PEO, a member of the NAE's staff, and the A-12 Requirements Officer on the staff of the Assistant Chief of Naval Operations (Air Warfare) (OP-05).

The following Monday, 7 May 1990, the PM briefed AIR-O2, the PEO, and COMNAVAIR regarding this information, and recommended that ASN(RD&A) "and appropriate authority" be promptly briefed regarding the potential corporate approach to senior OSD officials and the cost and schedule projections. However, the PM "was not fully successful in convincing them that his concerns were ready to be briefed up the chain." He testified that the PEO responded to this recommendation in substance: "I'm not going to take a problem to the NAE without a solution, because if I do, he may give me a solution that I may not like." The PEO testified that although he could not recall having made such a statement, it would not have been out of character for him to have done so, and it was consistent with his reaction to guidance he was receiving during frequent meetings with the NAE regarding another program at this time.

In any event the PM proceeded to brief the Requirements Officer and the NAE staff member later that afternoon "fully . . . on what the contractor presented . . . and what (he) perceived as the potential ramifications."

On 10 May 1990, the PM presented a proposed "information only" brief for ASN(RD&A) to AIR-O2, the PEO and COMNAVAIR, because he felt that this situation was "so complex and potentially explosive that no easy solution existed, and that it would be better to elevate the issues and concerns while potential solutions were being developed."

The briefing presented a substantially changed picture from that briefed to the NAE two weeks previously on 24 April 1990. After reaffirming the threat and projected A-12 capabilities as the "program drivers" and summarizing key aspects of the current contract, the proposed brief highlighted the following "basic issues:"

Cost - Prime Team Will Incur Major Loss in FSED

Schedule - First Flight Has Slipped - Milestones IIIA, IIIB, IOC Will Slip

Technical Performance - Weight Growth Continues - Lot I Specification Issue

The next slide indicated that on 25 April the contractors had acknowledged being "at or over ceiling on FSED," that "first flight was still uncertain," and that "weight and related performance were unachievable." On 4 May, the contractors had proposed to "slip major milestones, restructure the FSED contract, and delay Production Lot II." The slide noted that "proposed delays have positive engineering and support impacts."

The following slide assessed "cost" issues as follows:

OSD Analysis: About $1 Billion Over FSED Ceiling

AIR-524 Analysis: Confirms About $1 Billion Over Ceiling

Potential Scenario: Up to $1 Billion Over Our FSED - No Profit On Lots I, II, III - Net Loss for 620 Aircraft Program

With respect to "Cost Options," the proposed brief indicated that if the current contract were enforced, "contractor default or PL 85-804 was possible; claims/litigation was likely," although it would be "a weak case;" there might be "further reduced performance, and shortcuts," with the potential that "warranties may not be effective," and "future contract mods" would be "expensive." It was noted, alternatively, that "reshaping' the program would require additional research and development funds and Congressional notification, but could be done "within existing FYDP."

With respect to "Schedule" issues, the proposed brief indicated:

First Flight: March 1991?

Concurrency Has Increased

Sea Trials Will Not Support IIIA

OPEVAL Will Not Support IIIB

FY-94 IOC Unlikely

"Schedule Options" were first to enforce the contract as written, rendering the "test program overly compressed," allowing concurrency to "degrade production configuration, and thereby forcing "improper use of warranties." The alternative displayed was to "delay production of Lot II and beyond," which would "retain the NTE options, restore acceptable concurrency," and provide "incentives for the contractor" with "reduced warranty cost."

Finally, with respect to "Technical" issues, a slide identified "weight growth" as a "major technical spec deficiency," with impacts on single engine rate of climb, launch/arrest wind over deck, structure, future capabilities, and recurring/life cycle cost. While "pursuing technical solutions to mitigate impact," the slide indicated the "ultimate" possibility of "spec write-down after flight test."

A summary slide emphasized the need for and capability of the A-12, the financial jeopardy of the contractor team, and the benefits to the Navy of restructuring, and indicated "dialogue continuing at program level" with anticipation of "GD/McAir Corporate initiatives."

The PM could not obtain approval from the PEO or COMNAVAIR to present this briefing to the NAE. "Again," he stated, "I was asked to structure the presentation as an issue and recommendations brief, and was given the opportunity to try for a fifth and sixth time the following week."

On 16 May 1990, the PM proposed a two-page talking paper to be used to brief the NAE. The proposed talking points emphasized differences in the "acquisition environment" between 1986 and 1990, summarized the history of the FSD contract, and assessed the cost, schedule, and technical issues. The only significant difference from the substance of the 10 May 1990 proposed brief was with respect to cost: the FSD contract would "most likely be over ceiling; to what extent is debatable." Finally, the talking paper assessed three options: enforce the current contract; restructure the program; or exercise the Lot I option and then pursue restructuring within the existing contract.

The PEO directed the talking points be revised to one page. This was done principally by eliminating the discussion of options in favor of a recommendation to exercise the Lot I option and "pursue possible contract mod to reflect schedule realities, incorporate event-based options and emerging requirement." However, at a subsequent meeting between the PM, PEO, and COMNAVAIR, it was decided to focus only on the urgency of executing the Lot I option in the upcoming meeting with the NAE, and not to discuss the issues raised by the contractors on 4 May. The PM testified that the PEO directed that he not bring the talking paper, or any other papers or slides regarding the business issues to the meeting with the NAE. He further testified that he believed that to have raised those issues at the meeting would have been contrary to the PEO's desires. In any event, neither he, nor the PEO, nor the NAE staff member raised the issues presented by the contractors with the NAE at the 21 May 1990 meeting in which they secured his approval to exercise the Lot I production option. Nor were these issues brought to the NAE or SECNAV's attention at a subsequent meeting on 30 May where he was briefed regarding total program cost issues arising out of the MAR decision to reduce the procurement quantity. As the PM put it, "(The PEO) was attending that particular meeting and his direction had not changed on the particular issue earlier of potential corporate involvement, so I was not inclined to initiate discussion on that particular topic."

In his testimony, the NAE staff member confirmed the PM's testimony that he had been informed regarding the information received from the contractors and the PM's efforts to provide the NAE a briefing regarding it. He had reviewed the 10 May 1990 slides, but had not seen either version of the 16 May 1990 talking paper. He knew that the PM had been directed not to bring any slides on the issues raised by the contractors to the 21 May 1990 meeting with the NAE. The NAE staff member did not inform the NAE of these matters for three stated reasons: he did not and does not believe they were of sufficient magnitude to warrant alarm at the time; he felt that under the reorganization of the Office of the ASN(RD&A) it was the responsibility of the PEO to develop solutions and bring the matters forward unless the NAE was likely to be "blind sided" regarding them by higher authority; and he did not wish to jeopardize the willingness of the Program Office or NAVAIR personnel to share information with him in the future. Neither the NAE nor the SECNAV learned of the issues raised by the contractors on 4 May nor the information presented in the 16 April Class Desk brief until on or after the contractor presentation to the NAE on 1 June. After receiving the contractor presentation on 1 June, the NAE immediately alerted SECNAV and the USD(A), and DEPSECDEF and SECDEF were informed.

d. Major Aircraft Review. On 19 December 1989, SECDEF directed DEPSECDEF to conduct a review of the Navy's A-12 Aircraft and the Air Force's B-2 Bomber, C-17 Transport Aircraft, and Advanced Tactical Fighter. The primary emphasis in conducting the Major Aircraft Review (MAR) was to determine the impact that recent changes in world events would have on the need for the weapons systems in the future. SECDEF directed that DEPSECDEF report the results of the review by 30 March 1990.

On 19 December 1989, DEPSEC designated the Under Secretaries of Defense and the Chairman of the Joint Chiefs of Staff as members of the Major Aircraft Review Steering Group. The USD(A) was designated as Chairman of the MAR Steering Group. Upon being designated as Chairman, the USD(A) issued a memorandum on or about 22 December 1989 to the Steering Group members that summarized their agreement regarding the questions to be answered during the conduct of the MAR. The questions were:

(a) What are the U.S. defense aircraft capability needs for the next 15 years in light of the world's projected political environment and the nation's defense strategy?

(b) How well will those needs be met by our current aircraft?

(c) What are the priorities of the needs not projected to be met by our current aircraft?

(d) What are the alternatives to meeting those needs?

(e) What resources can we afford to devote to meeting those needs?

(f) How effectively do the programs identified in (SECDEF's) and (DEPSECDEF's) memorandums satisfy those needs?

On 4 January 1990, the Acting Deputy Director for Tactical Warfare Programs, OUSD(A), established an A-12 Aircraft Review Working Group to support the MAR Steering Group. The Working Group included representatives from the USD(A) and the Under Secretary of Defense (Policy) (USD(P)) staff and the Joint Staff, as well as the Office of the DOD Comptroller; the DOD Cost Analysis Improvement Group (CAIG); the Director, Operational Test and Evaluation; and the Navy and Air Force. The A-12 Action Officer on the USD(A) staff served as Executive Secretary of the Working Group.

Principal Navy participants were two officials from the ASN(RE&S) staff, OPNAV-50, OPNAV-501, OPNAV-502, OPNAV-76. Because the number of Navy seats was limited, the A-12 PM's request to participate as a member of the Working Group was denied.

On the basis of DAES reports and previous briefings, the A-12 was widely perceived as having no significant problems and had consequently not been subject to exceptional scrutiny by OSD prior to the MAR. The first OSD-level indication of an A-12 problem came in an October 1989 draft Program Budget

Decision (PBD), which recommended elimination of additional FY 90 funds for advance procurement of Lot I, elimination of FY91 procurement funds, and elimination of FY 91 funding for pre-planned product improvement. These recommendations were based upon cost and schedule concerns arising from, among other research, the DOD Comptroller staff's review of the CPRs and visits to the contractor facilities. On the basis of his review, the DOD Comptroller staff Budget Analyst estimated that the program was two years behind schedule and would likely overrun the FSD contract ceiling by $500M.

Based upon input provided by the Program Office, SECNAV on 2 November wrote the DOD Comptroller expressing strong opposition to the proposed PBD. He expressed particular concern about the cost implications of losing the favorable option prices for Lot II and beyond in the current contract, and the potential adverse impact of the PBD upon achieving IOC.

On 3 November 1989, the USD(A) also wrote the Comptroller to oppose the PBD, but indicated that it raised "a number of issues I want to explore in more depth." A Conventional Systems Committee (CSC) Program Review had been scheduled for December 1989 to review exercise of the Lot I production option. Because of the PBD issues, the USD(A) advanced the CSC meeting to 9 November.

At the CSC, the PM presented a "Good News" slide stating that the Critical Design Review was nearing completion, test planning was on schedule, and manufacturing facilities were in place. He stated that even if there was some risk in the first flight date, it could slip to December 1990 or January 1991 and still support the planned IOC. The CSC briefing concluded with the Program Manager's assurance that the program "was on schedule, on cost and on track." The DOD Comptroller representative did not vigorously press the contrary assertions of the draft PBD. Although the Budget Analyst had prepared a set of slides addressing counter arguments to the Navy's 2 November PBD reclama, they were not presented. The Budget Analyst was, however, offered the opportunity to raise the question on the potential over ceiling cost of $500 million. The PM responded by emphasizing that the FSD contract was fixed price incentive and that the government would not be liable for costs above the ceiling price. Additionally, he emphasized that the PBD proposal would breach the existing favorable contract.

A representative from the Office of the Deputy Assistant Secretary of Defense for Production Resources also noted concern about the A-12 schedule. A member of his staff had been scheduled to conduct an A-12 production readiness evaluation from 6 to 10 November in support of the planned December CSC meeting. Because of the sort-term notice rescheduling of the CSC to 9 November, he telephoned an interim report on 8 November. At the CSC meeting, the representative mentioned that he had received a telephone report from this production readiness person on the scene that things were not going well. However, since the review was currently ongoing, the information was tentative and he could not press the issue.

Following this meeting, the DOD Comptroller made the decision to withdraw the draft PBD rather than forward the issue to DEPSECDEF for resolution. In an interview, he indicated that he did so after discussing the issue with SECNAV. He indicated that he made the decision because "no one agreed with us," and he thought it was a "close judgment call" on the merits of the issues.

The Production Readiness Specialist completed his written report and provided it on 16 February 1990 to the USD(A) A-12 Action Officer, a Navy Captain, who put it aside and forgot about it. Consequently, the MAR Working Group never saw the report. Among other things, it warned that first flight might slip "well into CY91."

As previously noted, the PM was not a member of the A-12 Working Group. He did provide an overview briefing to the Working Group on 5 January 1990; brief the DOD Cost Analysis Improvement Group on 13 February 1990; and brief the Steering and Working Group members who visited GDFW on 9 March 1990.

The PM was directed to limit his 5 January 1990 presentation to the Working Group to 15 minutes or less and to address "total costs and expenditures to date." The PM prepared and presented six slides showing program structure through the second year beyond Initial Operating Capability; total program

flyaway costs; program costs for FY1984 through January 1990; five year budget projections for FY 1990 through 1994; status of the FSD contract (emphasizing its fixed price nature and the fully funded ceiling price.); and an assessment of FSD contract cost performance showing that his estimate to complete FSD was between target and ceiling, there was a schedule variance due to late drawing releases with a recovery plan in effect, and all variances were reported quarterly in the Defense Acquisition Summaries (DAES). The PM testified that when he noted that the contract was funded to ceiling, all interest in FSD cost evaporated.

Sometime in January 1990, a Cost Analyst representing the OSD CAIG visited the Program Office gathering information in support of the CAIG's MAR effort. Because she was interested in the CPRs, among other things, the Program Office made the NAVAIR Cost Analyst available. The Cost Analyst briefed the official Program Office estimate. The OSD CAIG Cost Analyst asked if there were alternative estimates; the NAVAIR Cost informed her that there were, but discussed only the official Program Office estimate. the OSD CAIG Cost Analyst did not pursue the matter directly, but instructed the Navy Center for Cost Analysis to conduct an assessment of FSD costs based on the CPRs. That assessment concluded that there was some possibility of exceeding ceiling but there was no problem because the contract was funded to ceiling.

On 13 February 1990, the PM briefed the CAIG, whose chairman was a member of the A-12 Working Group. The presentation consisted of 20 briefing slides that outlined the A-12 Aircraft program cost approach; status of th4e FSD contract; production cost estimates; methodology and factors; integrated logistics support cost, operating and support cost estimates and summary life cycle costs. The briefing also showed a detailed breakdown of A-12 weight problems.

On 8 and 9 March, most members of the MAR Steering Group, including the USD(A), and several of the A-12 Working Group, visited McAir and GDFW. The most significant of these visits was 9 March at GDFW where SECNAV jointed the group. On the morning of 9 March, the PM briefed the group. The presentation consisted of 16 briefing slides that showed the primary and secondary A-12 missions; IOC; a comparison of the phasing-out of the A-6 Intruder with the phasing-in of the A-12; key F-12 design features and support; wind over deck requirements and status; status of FSD; program structure through FY 1996; program security transition from compartmented to general security status; and total program acquisition costs. According to notes taken by a participant, the PM addressed cost and schedule risk variances, suggesting costs would go to ceiling; schedule risk; and problems with fabrication of "large ribs." He described the GDFW operation as being of "moderate risk."

Later in the day, the contractor briefed the group. The "top 10" problems were discussed including weight, which was described as the number one problem, and schedule, the number two problem. Most people we interviewed, both Government and industry, recalled significant discussion of both problems. The contractor team briefer projected first flight in December 1990, an additional three-month slip from the date briefed by the navy PM at the November CSC meeting. The MAR Working Group Chairman recalls being "furious" at the first flight slip from September to December 1990. This was the first he had heard about it and , given the "rosy picture" he felt had been painted during the November CSC meeting, he thought this was a major surprise.

The Navy PM described the December 1990 date at "aggressive but achievable." The GDFW program manager described first flight as having an 80 percent probability of achievement by December 1990; however, the GDFW General Manager was more cautious in stating only a "50/50" likelihood. The USD(A) characterized the 50/50 likelihood as leaving "no room for major glitches."

The contractors projected completion of the FSD contract within ceiling, and assessed that their major areas of cost risk were inflation and business base. The USD(A) was concerned about the level of risk in the FSD program, and questioned both the contractors and the Navy PM regarding the cost and schedule implications of the stated technical challenges. He asked them to identify not only the "top 10" problems, but "the things that might not be problems yet, but which caused them to lose sleep at night . . . the storm clouds in the horizon." Neither the PM nor the contractors indicated any risk of substantial cost growth beyond ceiling, or schedule delay beyond a potential slip of first flight to March 1991. The visiting

MAR group was left with the impression that while there were some problems, there were no "show stoppers."

On 14 March, SECDEF and USD(A) visited McAir. The PM gave the same briefing he gave to the MAR group the previous week. The primary difference was that McAir did not make a "top 10" problems presentation. However, according to the PM, he made the same weight problem and 'aggressive schedule" presentation.

On 17 and 20 March, pre-briefs were held in preparation for a 28 March briefing to SECDEF. There is evidence that cost and schedule risk was discussed at the 17 March meeting with DEPSECDEF. The USD(A) recalls that composite producibility was a principle concern, and that the CAIG had noted its potential cost impact. He discussed his concern regarding this with DEPSECDEF and SECDEF. He also noted that throughout the MAR, CAIG cost estimates were utilized in all cases where they were higher than the Service estimates, as in this case. At the 20 March pre-brief, a slide was added on program status that showed "moderate to high" technical risk.

On 26 March, at the request of USD(A) for an independent assessment, the Principal Deputy USD(A) directed the Deputy Director for Cost Management on the OUSD(A) staff to review available FSD cost performance information and provide his view regarding the issue of cost risk. He was granted access to the A-12 program on 26 March. On 27 March he concluded an analysis of A-12 DAES reports and immediately reported the results to his superior. His analysis concluded that the A-12 FSD contract would likely exceed ceiling by $1 billion. He provided those results to the Principal Deputy USD(A) either that day or the next.

On 28 March, the MAR Steering Group began the briefings to SECDEF. The first day of briefs was characterized as spending the bulk of the available time on threat issues. The A-12 was the first of the four aircraft to be briefed but was not finished.

The A-12 portion consisted of 20 briefing charts that provided a range of information on the A-12 Program. These charts described policy and strategy considerations relevant to air superiority and strike requirements through 2005; listed selected third world threat increases in terms of aircraft and missiles; identified a potential strike scenario; listed A-12/ATA force levels and shortfalls; displayed a technical, schedule, and cost assessment of the A-12 program, indicating "moderate to high risk," and overall program issues; identified alternatives to the A-12/ATA; compared the Navy's A-6AE and A-12 inventory requirements and costs; and presented the conclusions of the A-12 Aircraft Review Working Group.

The briefing showed that there were three and a half years left in the FSD phase and that the Navy's A-12 aircraft performance requirements were being met except in weight (over by 10 percent), which affects wind speed over deck landing requirements. The briefing also showed that the scheduled first flight had slipped three months to December 1990 and that program concurrency was high. DEPSECDEF asked about further schedule slip risk and the Working Group Chairman responded that there was a reasonable risk. The presentation showed that the CAIG identified a possibility of a 10 percent cost growth beyond the Navy estimate because of uncertainty associated with composite manufacturing. The Working Group did not consider this a "significant disagreement" with Program Office and NCCA estimates.

The Director, Acquisition Policy and Program Integration on the USD(A) staff stated that his office had completed an initial contact cost assessment the night before and that costs could go a "few hundred million over ceiling." He indicated he would report back later with details. Some participants recall that someone responded that the contract was funded to ceiling so this would not be a problem, but there was no further discussion.

On 29 March, the OUSDA Deputy Director for Cost Management briefed the PM, his BFM and the NAVAIR Cost Analyst's second level supervisor concerning his estimate of contractor FSD costs. The PM notified his immediate superiors and the Office of the Assistant Chief of Naval Operations for Air Warfare (OP-05) that he found the presentation "compelling," but it was noted that the Deputy Director for

Cost Management had only had access to the program for two days, and did not have detailed knowledge regarding the contract.

On 2 April, representatives of the CAIG met with the Deputy Director for Cost Management and his supervisor to review the basis for his over ceiling estimate. As a result of these discussions, the CAIG Cost Analyst prepared a memo on 3 April 1990 to the Assistant Secretary of Defense (Program Analysis and Evaluation) (ASD(PA&E)), describing the estimate and indicating that the CAIG estimate was within 10 percent of it. She termed the Deputy Director for Cost Management's "preferred estimate . . . consistent with our concerns with the date of first flight and with materials cost." The largest element of the CAIG's increase was related to the cost of an additional schedule slip, the possibility of which, the memo suggests, had been discussed with the ASD(PA&E) at an earlier date. The memo notes, in that regard, the CAIG's view that "the date for first flight now accepted by the Navy is achievable, but probably optimistic and indicates an additional six months slip would result in virtually identical estimates." The memo concludes: "The A-12 FSD contract is a fixed-price incentive fee contract, and the Navy has budgeted to its ceiling, so the government's liability is covered." Neither the Deputy Director for Cost Management nor his supervisor was aware of the 3 April memo prior to this inquiry. However, the Deputy Director for Cost Management did de-brief his supervisor on his 2 April meeting and indicated that the CAIG did not disagree with his estimate. It was his opinion that they were within 10 percent, and consistent with their MAR position that FSD would most likely reach or exceed ceiling.

On 4 April, the day before the second MAR brief to the SECDEF, the USD(A) was briefed on the projected over ceiling cost for the A-12 contractors. His immediate reaction was to call the CEOs of both companies to get their reaction to this estimate. The Director, Acquisition Policy and Program Integration, the Deputy Director for Cost Management, and the Principal Deputy USD(A) counseled him to wait. They noted that the Navy PM had been briefed on 29 March, and the SECDEF had been alerted on 28 March. Furthermore, the Principal Deputy USD(A) had directed the NAE to initiate action to renegotiate the A-12 options to make them event-based. In this context, they cautioned the USD(A) that he should not assume the contractors, and especially the CEOs, were aware of this potential overrun. Raising the issue immediately might jeopardize the possibility of making the contracts event-based. The USD(A) indicated that, if the estimate was accurate, he felt they either knew and withheld the information or there was a serious communication problem within the companies. However, he agreed to wait, indicating that if they did not agree with the estimate they should be willing to revise the contracts. It was also noted by someone that this might be a good way to ascertain their real cost position. He then directed the Principal Deputy USD(A) to proceed with the effort to revise the contract to, as he put it, "bring the issue to a head."

At the 5 April continuation of the 28 March briefing to SECDEF, the Director, Acquisition Policy and Program Integration again mentioned the over ceiling estimate, this time as being $1 Billion. He recalls no specific reaction. Mr. Betti has indicated that "since this was a new estimate and did not appear to be consistent with either the Navy or the CAIG estimates, it was not discussed in detail." At the meeting, SECDEF emphasized the need for the best program cost estimates possible because "we cannot go back to Congress after the MAR with new estimates." this comment resulted in a tasking to the Director, Acquisition Policy and Program Integration to gather together the best estimates of each of the aircraft programs. The 5 April session was continued to 10 April, but no discussions occurred on that date known to be relevant to this inquiry.

As a result of the 5 April briefing, the Director, Acquisition Policy and Program Integration met with the CAIG Chairman and member of his staff on 9 April. Information developed at that meeting resulted in a 12 April memorandum to the USD(A) showing a comparative listing of CAIG versus Service constant dollar estimates. Both memos recommend using CAIG estimates which, for the A-12, are about 10 percent higher in acquisition cost. The memos also include the following statement:

> *Another indication of cost risk is the analysis of current contracts that we discussed earlier. The highlights were: A-12. We believe MACAIR and GD could go over ceiling by $1 billion total.*

As previously indicated, the USD(A) followed the recommendation that CAIG estimates be used whenever they were higher than the Service estimates.

On 13 April, the USD(A) telephoned the CEO of GD and the President of McDonnell Douglas. He reiterated the concerns he had expressed at the 9 March meeting at GDFW regarding cost and schedule risk, and noted that information developed since that meeting had not allayed his concerns. Mr. Betti does not recall whether he mentioned the $1B over ceiling estimate specifically. The CEO of GD indicated that he still believed that the FSD contract would be completed within ceiling, but that in response to the concerns expressed during the MAR, GD and McAir had that day initiated an independent corporate "Red Team" assessment of program cost and schedule. He indicated that results would not be likely available until June. In an interview during this inquiry, the CEO stated that at the time of this conversation, he thought there might be some risk of going over ceiling by no more than $100 to $300M, an amount which he considered the contractors could absorb. The President of McDonnell Douglas indicated that McAir would cooperate in the "Red Team" review, but that he did not believe there was a problem.

Following these conversations, on 17 April, the USD(A) sent a memorandum to SECDEF that indicates the following:

> *The bottom line is that only the A-12/ATA is assessed as having a cost or schedule risk. No specific problem has been identified but they [the contractors] agree with our assessment that the work versus the cost incurred indicates a cause for concern. General Dynamics and McDonnell-Douglas are initiating a "corporate team cost to completion" study involving both companies and will advise us of results.*
>
> *- 1st flight at end of 1990 very tight in spite of recent 6 mo. slip*

Meanwhile, in response to a February memorandum from the Principal Deputy USD(A), the NAE had made a preliminary review of the feasibility of renegotiating the Lot 1 option exercise, and concluded that it should be exercised under the current contract. On 18 April, he met with the Principal Deputy USD(A) to make that recommendation. The Principal Deputy USD(A) would not agree to do so, and the NAE agreed to review the matter further with his staff. The Principal Deputy USD(A) did not indicate that renegotiation of the option could also be a strategy to ascertain the contractors' understanding of the status of the FSD contract. The NAE, who had been confirmed on 12 March 1990, had not participated in the MAR process and was unaware of the variance between the contractors' and PM's position regarding its status and that emerging from the OSD staff. The NAE stated that he thought the issue was "event-based contracting in general, because of the problems emerging in many programs with NTE options," and that the A-12 "was simply the first case on (the USD(A))'s scope."

The Principal Deputy USD(A) told the NAE that the Deputy Director for Cost Management had estimated that the FSD contract would go $1B over ceiling. According to the NAE, the Deputy Director for Cost Management , who was present for the latter part of the meeting, showed him a "CPI slide" indicating his estimate. The Principle Deputy USD(A) indicated that the NAE should obtain a detailed briefing from his, and the NAE agreed. According to the NAE, the $1B over ceiling estimate was no particular surprise, as he was "already of the view that these programs had problems," but he assumed that the contractor team had anticipated a loss during FSD with the expectation of recovering it through production. Nothing was said to indicate to him any connection to the MAR. The NAE reviewed the event-based issue on 24 April and 21 May, and in discussions with the Principal Deputy USD(A) obtained his approval to do so without incorporating event-basing on 29 May. The NAE's office did not obtain the briefing from the Deputy Director for Cost Management on his estimate until after the contractors' presentation on 1 June 1990.

The USD(A) understood the need to make a close examination of FSD costs and schedule issues implicit in SECDEF's direction to conduct a thorough review of the A-12 program during the MAR. He also understood the potential implications for program executability of a substantial overrun of the FSD contract ceiling price, and utilized the meeting with the PM and the contractor team (including the CEOs) on 9 March to make a personal inquiry into these matters. At the meeting, he encouraged them to share potential risks to cost and schedule, in his words "potential storm clouds on the horizon," as well as the risks identified during their briefings.

However, it is apparent that MAR participants at the Working Group level did not share a clear vision of the relationship between cost and schedule risk and the contractor team's ability or willingness to perform within the FSD contract. At the Working Group level, and as it appeared to the Navy and the Program Office, the MAR was understood by participants as primarily a requirements, capabilities and affordability review, not a program review. The CAIG reviewed FSD costs from the standpoint of cost risk to the Government, not risk to contract performance. Because its estimate was only 10% or so higher than the Navy, the CAIG did not view its cost position as in significant disagreement with the Navy. By the same token, since the Deputy Director for Cost Management's estimate was only 10% or so higher than the CAIG's, the CAIG did not view his estimate as any significant disagreement with its own. Inasmuch as the CAIG did not revise its own schedule upwards -- and I do not mean to imply that it should have -- it did not actively reinforce the Deputy Director for Cost Management's estimate to the senior leadership.

It must also be understood in the regard that the Deputy Director for Cost Management estimate was developed virtually at the end of the MAR, and stood in substantial contrast to the projections by both the PM and the contractor team that the FSD contract would be completed within ceiling. The USD(A) considered it cause for concern, but evaluated it in light of the position taken by the Navy and the contractors, and in light of the fact that he had directed that the MAR utilize the higher cost estimate developed by the CAIG. In my view, given the position taken by the Navy and the contractors and the late breaking nature of the Deputy Director for Cost Management's estimate, the characterization of program risk as moderate to high and the adoption of the CAIG estimates with respect to FSD cost were reasonable, and the USD(A) took reasonable action to indicate the risk of further cost and schedule growth. Regrettably, the last minute nature of the Deputy Director for Cost Management's estimate and the more optimistic positions taken by the Navy and the contractors regarding completion of the FSD contract, impeded a focused, coordinated assessment of the potential impact of the likely overrun upon the contractor team's willingness and ability to maintain the then-projected schedule, or anything close to it, in light of their deteriorating financial situation.

4. Findings

a. General Findings.

With respect to the central focus of this inquiry, I find:

(1) Did the Navy, OSD or the contractor know or have reason to anticipate substantial additional cost increase and schedule slip at the time of the MAR?

(A) The contractor program management team should have anticipated substantial additional cost increase beyond the ceiling of the FSD contract at the time of the MAR. Their projections of completion at or within ceiling were unrealistic and not supported by the facts available to them. The contractor team should also have anticipated greater schedule risk than was briefed during the MAR.

(B) The PM erred in judgment by failing to anticipate substantial additional cost increase beyond the ceiling of the FSD contract at the time of the MAR. His projections of completion at or within ceiling were unreasonably optimistic and not supported by the facts available to him. The PM also erred by failing to anticipate greater risk to schedule than was briefed at the MAR. However, the dramatic schedule slippage announced by the contractors on 1 June 1990 may have been, in part, a consequence of business decisions following the MAR. The PM did not have reason to anticipate this source of additional schedule risk at the time of the MAR.

(C) Based upon information made available to them through Navy channels prior to and during the course of the MAR, neither the NAE nor the Secretary of the Navy knew or had reason to anticipate substantial addition cost increases or schedule slips.

(D) At the outset of the MAR, members of the OSD Comptroller staff believed, based upon views expressed in the draft PBD developed in August 1898, that the FSD contract would be completed

$500M or move above ceiling, and that production would be delayed one to two years. Moreover, officials in the Defense Product Engineering Services Office believed there was substantial risk of further schedule slippage to first flight. However, the MAR Working Group did not focus on the cost and schedule status of the FSD contract, and thus did not integrate the data supporting these views, as well the implications of the negative cost and schedule performance reflected in the DAES, into a critical perspective on FSD contract performance.

(2) If the Navy, OSD or the contractor should have anticipated substantial additional cost increase or schedule slip at the time of the MAR but did not, why not?

(A) The PM erred in judgment by under-estimating the implications of adverse cost performance and manufacturing data in his program estimates in the DAES and program status briefings.

(B) COMNAVAIR, as the accountable PEO until 16 April 1990 and Head of the cognizant Contracting Activity, failed to provide adequate oversight to ensure the disciplined administration of the FSD contract, and that program estimates fairly reflective of cost and schedule risk were provided to the NAE and higher authority.

(C) Higher level officials within the Department of the Navy and OSD relied, in large measure, upon the representations of the PM and the contractor team regarding cost, schedule, and technical risk. A Navy oversight mechanism, the ASN cost performance report, was not prepared and forwarded in the A-12 program due to security concerns. Had it been prepared and forwarded, it might have focused attention upon the FSD contract status.

(D) A critical OSD oversight mechanism, OSD staff review of contractor CPR data, would have focused attention upon the FSD contract status, but was not employed until March 1990 in the A-12 program due to security concerns.

(3) If so, were senior DOD and DON leaders sufficiently apprised in the course of the Review? If not, why not?

(A) In late March and early April, after the completion of the MAR but prior to the SECDEF's testimony announcing his decisions, a USD(A) staff estimate that the FSD contract would be completed $1B over ceiling was briefed specifically to the PM, the USD(A) and the Deputy USD(A). This estimate was mentioned by the Director, Acquisition Policy and Program Integration, Office of the USD(A), in the presence of SECDEF, DEPSECDEF, USD(A), other principal OSD officials and staff participating in the MAR review, and SECNAV. It was called to the attention of the NAE in late April, shortly before the Secretary of Defense's MAR testimony, but the NAE was newly appointed, had not participated in the MAR and did not recognize its significance in that context. It was not briefed specifically to SECNAV until June 1990.

(B) Moreover, current program status was, at best, a secondary focus of the Working Group efforts supporting the MAR. Their efforts primarily focused upon threats, requirements, alternatives, and total program affordability. Information regarding current program status was primarily derived from the PM during the MAR Steering Group's 9 March 1990 visit to GDFW. Although principal officials, comprehensive, coordinated OSD assessment of current program status and FSD cost or schedule risk was made. This heightened the reliance placed upon the PM's position and the contractors' representations.

b. Additional Findings

Although not central to the focus of my inquiry, I make the following findings regarding significant matters which arose during its course and are reflected in the evidence of record:

(1) The PEO for Tactical Programs failed to fulfill his responsibility fully to inform NAE of relevant

mattes pertaining to cost, schedule and technical performance of the FSD contract in connection with the decision to exercise the Lot 1 production option, and prior to the contractor team's presentation to the NAE on 1 June 1990.

(2) As senior officer present in the discussions on 7, 10 and on or about 16 May 1990, and Head of the cognizant Contracting Activity, COMNAVAIR failed to fulfill his responsibility to counsel the PEO to inform the NAE of relevant matters pertaining to cost and schedule performance of the FSD contract in connection with the Lot 1 production option.

(3) An NAE staff member erred in judgment by failing to apprise the NAE of relevant matters pertaining to cost, schedule and technical performance of the FSD contract prior to the decision to exercise the Lot 1 production option, or prior to the contractor team's presentation to the NAE on 1 June 990.

5. Recommendations.

a. I recommend that you endorse the following recommendations to the USD(A) for consideration and action:

(1) Review this report personally with the Secretaries of the Military Departments and the Service Acquisition Executives to express your concerns, share reactions and develop consensus views on the best means to ensure that your needs as senior leaders are met by the system. This review should focus on, among other things, how to develop positive incentives for PMs and PEOs to display realistically the full range of cost, schedule and technical risk in development programs.

(2) Direct the team presently revising DOD Directive 5000.1 to draft for inclusion therein

(A) a clear and direct policy statement of the PM's responsibility to provide realistic assessments of the range of program status and risk in all briefings and presentations to higher authorities, to actively manage contract performance rather than merely monitor it, and to make accurate, independent assessments of contractor performance.

(B) a requirement that the comments of Section 7 of the currently proposed DAES revision display a range of EACs, the best professional judgment of the servicing cost analysis organization as to the EAC, and an explanation for a best estimate lower than the cumulative CPI.

(C) a requirement that the PM justify his EAC in the Section 7 comments if lower than the cumulative CPI.

(D) a requirement that the PM display in his narrative comments in Section 7 his top 5 challenges in rank order, indicating his best case, worst case and best estimate regarding their impact on cost, schedule and performance, together with a description of actions he is taking to achieve his best estimate.

(E) a requirement that the PEO and SAE personally review the DAES submission and provide their personal assessment of any changes reported in the relative level of risk associated with the program, the significance of the problems reported by the PM, the PM's proposed action plans, the level of risk associated with them, and other significant changes to the program or issues from their respective vantage points. They should be understood to be accountable for the factual predicate for their comments.

(3) Develop with the SAEs, a pool of the best functional experts from throughout OSD and the Military Departments, to be formed into special review teams representing OSD and the Departments concerned to conduct special reviews as the USD(A), in coordination with the SAE concerned, may deem appropriate to address issues arising in the DAES review process.

(4) Direct DCMC to take appropriate administrative and/or disciplinary action with respect to deficient performance by the ACOs at DPRO-St. Louis and DPRO-Fort Worth, and review, in coordination with the supported Military Department and DCAA, the process for administration of progress payments to ensure adherence to policy and appropriate visibility to program management.

(5) Review the operation of OSD-level oversight mechanisms for all ACAT I special access programs, and resolve any shortfalls in oversight due to security requirements.

(6) Direct your staff to develop, with DCMC and the Military Departments, a requirement for detailed planning of contract performance oversight including CPR or related analysis and manufacturing oversight, as a condition of Milestone II approval. The plan should include completed agreements between the Program Office and the supporting DPRO clearly specifying responsibilities and agree resources.

(7) Refer pertinent information developed during the inquiry to the Comptroller of the Department of Defense, with the request that he take appropriate administrative and/or disciplinary action with respect to deficient performance by the DCAA Resident Auditors in Lt. Louis and Fort Worth, and any other actions necessary to enforce accountability and ensure effective contract audit support by the DCAA.

(8) Direct that DCMC review with DCAA and the Military Departments policies and procedures to ensure that there is effective audit follow-up and unresolved issues are brought to the attention of the Program Manager.

(9) Direct that DSMC, with DCMC and OASD(P&L), develop a case study of lessons learned from this report.

(10) Develop a focal point with the USD(A) staff to assess the financial health of major defense contractors on an ongoing basis to provide assessments to USD(A) and the Military Departments in connection with program and acquisition decision-making.

(11) Assess accountability, if any, among personnel under the supervision of the USD(A) for matters evidenced by this report.

b. I recommend that you take appropriate administrative and/or disciplinary action with respect to the General Findings of this inquiry pertaining to the PM, the General and Additional Findings pertaining to COMNAVAIR, and the Additional Finding pertaining to the PEO.

Subject to the recommendation of the ASN(RD&A), I further recommend that you:

(1) Reconstitute the A-12 Program Manager as the Direct Reporting Program Manager.

(2) Direct that ASN(RD&A), in coordination with the Chief of Naval Operations (OP-08), review the operation of program management controls in all special access acquisition programs, and make any needed improvements.

c. Subject to any guidance you may provide, I recommend that the ASN(RD&A) take the following action:

(1) Prepare a policy memorandum for all Program Executive Officers and Major Program Managers emphasizing the following matters:

(A) The responsibility and accountability of each PM and PEO for realistic risk assessment and reporting of significant adverse developments to higher authority.

(B) That a fixed price contract funded to ceiling is no guarantee of performance, and does not diminish the PM's responsibility to manage the contract.

(C) That reliance on contractor representations is no excuse for failure to develop accurate, independent assessments of contractor performance.

(2) Establish a strong focal point within OASN(RD&A) for oversight of cost performance measurement in the SYSCOMs, with emphasis on ensuring that SYSCOM analysts are independent, calculate a range of estimates, and provide their best professional estimate to supported PMs; fostering utilization of CPR detail level analysis by functional specialists; and involving PMs in establishing and defining their data needs in requests for proposal.

(3) Implement the substance of recommendations a(2)(B) through (E) above immediately within the Department of the Navy within the current DAES Formats 6, 11 and 12, pending issuance of DODD 5000.1

(4) Identify functional experts from throughout the DON for an ASN(RD&A) special review team, to be detailed for special reviews of problems identified through the DAES report and other special reviews, and to participate in such efforts with OSD if recommendation a(3) above is adopted.

(5) Review the process for review and approval of progress payments within the DON to ensure consistency with DOD policy and DCAA audit policy.

(6) Review the implementation of the Defense Management Review Report within NAVAIR, to ensure that supported PEOs and their major PMs have decision authority commensurate with their full responsibility and accountability for cost, schedule and performance of their assigned programs.

(7) Take appropriate administrative and/or disciplinary action with respect to the Additional Finding pertaining to the NAE staff member.

6. Conclusion.

The sum and substance of the conclusions and general findings of this inquiry is that existing control mechanisms, properly operated, would have been sufficient to identify the nature and extent of the problems in this contract, but that they were not properly operated. That is true enough, and forms the basis for several of the foregoing recommendations which are intended to make those mechanisms work better.

However, I believe it is not a sufficient response to the problems revealed by this inquiry simply to enforce accountability and strengthen a few existing procedures. The A-12 Program has been treated as the Navy's number one aviation priority in fact as well as rhetoric. The PM is an Aviation Engineering Duty Officer, with three advanced degrees and a career path which would be a model in any of the new Service Acquisition Corps. He has been on-station for more than four years, and was assigned with the understanding that he would remain through first flight. He was afforded the luxury of personally selecting key members of his immediate staff. His program has enjoyed strong Congressional support and full –funding from its inception, at least within the ceiling of the fixed-price contract. No Congressional or OSD direction, let alone micromanagement, has been identified as perturbing the FSD program or impeding his ability to make decisions. Neither did he identify any direction or demands from the OPNAV staff which impeded his ability to manage his program. In short, the PM in this case is the archetype of the well-trained, highly motivated professional, fully empowered to fulfill his responsibility and be accountable for cost, schedule and performance of his program, that we are seeking to develop under the acquisition corps plans and matrix management approach reflected in the Defense Management Report. Nonetheless, it should be plain that neither he, nor the similarly well-qualified and dedicated officers in his chain of supervision, met the needs of senior civilian leaders within the DON and DOD for an accurate assessment of the program's status and risk.

This inquiry raised the question of whether the program management structure reasonably anticipated and met the needs perceived by senior civilian decision makers for information. Unquestionably, it failed that test. However, I am concerned, based on my observations during the course of this inquiry, that our Program Managers and Program Executive Officers/SYSCOM Commanders and their key advisors are not sufficiently focused upon that objective. They are primarily focused on their programs, and too often treat their superiors in the acquisition

chain – and perhaps the military service chain as well –as gatekeepers from whom they obtain necessary decisions and approvals, and whom they enlist to do battle 'at the political level" with bigger gatekeepers. They do not perceive in the fullest sense that the NAE or the Secretary of the Navy, let alone the USD(A) or the Secretary or Deputy Secretary of Defense, has any direct responsibility or accountability for what they do.

At the same time, the senior civilian leaders hold the key to the resources necessary to execute the programs. For this reason, as well as for many others, program-focused mangers do not have positive incentives do display the full range of risk in their programs to officials who might respond by cutting their resources. In this case, the PM noted repeatedly and forcefully that he had always kept his superiors informed of the major technical challenges in the program and that he insisted at all times upon candor in any discussion of program issues. The record supports him in this regard. He emphasized that the contractors had been commended for the candor of their presentation during the MAR visit to Fort Worth, and that is correct. He emphasized that he discussed his rating of cost and schedule as "Green" in the narrative portion of the DAES, even though some advised him not to, because he had wanted to highlight those issues for the chain of command. It is true that he discussed those issues although there was no requirement that he do so.

Nonetheless, when one compares the information he received regarding the program with the information he transmitted up the chain of command, its is plain that the possibilities were always cast in a positive, optimistic, light. The PM focused on the fact the Critical Design Review had been started a month early, not on the fact that it had to be split in three parts to meet the contractors' cash flow needs, and that the last phase had to be delayed six months behind the original schedule because of technical issues. The PM focused on the contractors' future plans for recovery, not the implications of their lengthening record of actual performance. In discussing his estimates in the DAES reports, he indicated why things would get better or, when things clearly were not getting better, he emphasized the protection afforded by the fixed-price contract. Even as his projections increased toward ceiling in February 1990, he chose to base them upon continued performance at the cumulative CPI, without reference to the substantially sell favorable record of the preceding six months. His comments in the DAES regarding cost and schedule tended to preempt concern and provide reassurance, and never focused on the indications he had of even greater risk.. Whatever his intentions, such actions simply are not the same thing as highlighting risk in a system which depends upon information being pushed up from the bottom. Nor is it sufficient to the needs of superiors that the Program Office always responded candidly to every inquiry received.

The PEO's response – and COMNAVAIR's acquiescence in it – to the PM's desire to brief the NAE regarding the contractor's 4 May 1990 presentation is similarly instructive. It was not focused on anticipating and meeting the NAE's needs; rather, it was focused on obtaining the desired decision. COMNAVAIR's failure to bring the adverse information from the 16 April Class Desk update forward – as he had indicated he would do – is an additional indicator. On both occasions these leaders considered whether to bring news of adverse developments forward, but decided not to do so.

There is no reason to believe that the factors which made these officials choose to respond the way they did are unique to this Military Department. Indeed, experience suggests that they are not. Unless means can be found to solve this abiding cultural problem, the failures evidenced in this report can be anticipated to occur again in the same or similar form. The MAR Working Group Chairman expressed one perspective saving, "I take some responsibility. We should have looked harder. I trust people too damn much." However, although oversight and review mechanisms should have worked better in this case – and should be made to work better in the future – I believe that the fundamental problem, and the critical path to effective implementation of the Defense Management Report, is to create appropriate incentives to enable senior leaders to rely upon responsible, accountable line managers for realistic perspectives on the cost, schedule and technical status of their programs. Only by doing so can we increase efficiency and accountability while reducing the burdens imposed by undue regulation and stifling supervision.

Chester Paul Beach, Jr.
Inquiry Officer

[1] The contractor team has not filed a certified claim. However, on 12 November 1990, the contractor team did submit a memorandum in support of its position that the FSD contract should be restructured, asserting entitlement to additional payments. The memorandum is presently under evaluation.

[2] Two members of the inquiry support team had some involvement in the matters under review. Each fully and candidly disclosed his involvement to be before joining the team, and each provided expert technical assistance with respect to, respectively, cost and schedule performance analysis and production oversight issues. Notwithstanding their superb assistance – and that of the other team members – I bear sole responsibility for the analysis, findings and recommendations contained in this report.

[3] The A-12 Acquisition Plan provided that "(a) PERT, or similar internal contractor system capable of monitoring program status to at least the third level of the work breakdown structure, will be utilized throughout the (A-12) program to focus management attention on potential problem areas." The McAir system (Automated Integrated Scheduling System (AS)) and the GDFW system (referred to as "P-2") are not compatible, which impedes the free flow of information between the contractors. Data generated by P-2 is periodically downloaded into AS, but AS data cannot be downloaded into P-2. The NAVPRO had direct access to AS from two terminals in its own spaces until 25 September 1989, when access was withdrawn by McAir, ostensibly because the system was not functioning properly. Direct access was restored on 13 February 1990. During this "blackout" period, McAir did provide all information from the system requested by the NAVPRO. P-2 was not as useful as AS, and AFPRO personnel never had direct access to it. As at McAir, however, GDFW did provide all information from P-2 requested by the AFPRO. On balance, the lack of utility of these systems inconvenienced the NAVPRO and AFPRO, but did not preclude fulfillment of their responsibilities. It is nonetheless troubling that these systems, cited in the Acquisition Plan as a factor supporting the acceptability of the risk inhering in the highly demanding manufacturing and assembly schedule, did not fulfill that promise.

[4] Progress payment audits are one of a number of audit services and activities accomplished by these audit offices, which are under the direction of a Resident Auditor. Audits of progress payments are generally made on the request of the contracting officer; however, DCAA auditors can initiate an audit whenever they have a valid reason to consider an audit necessary to protect the interests of the Government.

[5] Following our trip to the contractor facilities 23-27 July 1990, both the Defense Contract Management Command and the Defense Contract Audit Agency initiated action to determine more precisely the contactor team's physical progress, the amount of excess progress payments, the amount of additional progress payment liquidation required, if any, and whether the contractor progress payment requests were accurate at the time of submission. DCAA audit reports were issued on 7 and 14 September 1990, respectively, regarding the McAir and GDFW portions of progress payment request number 31, covering the period through 12 July 1990. Progress payments have since been reduced to recapture the over-progressing identified in these reports, and a loss ratio has since been applied to reflect the present over-ceiling estimates at completion. These remedial actions are sufficient, in my view, to protect the Government's financial interests with respect to the deficiencies in the administration of progress payments identified by the inquiry.

[6] The Acquisition Plan provided that the CDR would be completed in a single phase by May 1989. However, by January 1989 it was apparent that date could not be met. Program officials decided to split the CDR into three phases, with the first to be conducted in May 1989, and the last to be completed by December 1989. Theline-item payment associated with completion of the CDR was divided into payments for completion of each phase. CDR was actually not completed until June 1990.